

**DEPARTMENT OF ENERGY  
FY 1999 CONGRESSIONAL BUDGET REQUEST  
OTHER DEFENSE ACTIVITIES  
(Tabular dollars in thousands, Narrative in whole dollars)**

**FISSILE MATERIALS DISPOSITION**

**PROGRAM MISSION**

In the aftermath of the Cold War, significant quantities of weapons-usable fissile materials (primarily plutonium and highly enriched uranium) have become surplus to national defense needs both in the United States and Russia. The Department of Energy's (DOE) Office of Fissile Materials Disposition is responsible for defining and implementing a path forward for the verifiable storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs. The efforts undertaken by the Office of Fissile Materials Disposition contribute to the Administration's approach to irreversibly dispose of the Nation's surplus plutonium and highly enriched uranium, reduce the number of sites where surplus weapons-usable materials are stored, and provide technical support for efforts to attain reciprocal actions for the disposition of surplus Russian plutonium.

In January 1997 the Department issued a Record of Decision regarding the storage of all weapons-usable fissile materials and the disposition of surplus plutonium. The Department will reduce the number of sites where plutonium is stored through a combination of storage alternatives and disposition alternatives. Surplus plutonium pits from Rocky Flats are being moved to Pantex. Stabilized and separated non-pit plutonium from Rocky Flats will be moved to Savannah River (after certain conditions are met). Storage of surplus plutonium at other sites will continue, pending disposition. Highly enriched uranium will continue to be consolidated and stored at Oak Ridge, pending disposition of the surplus.

The Department is pursuing a hybrid plutonium disposition strategy that includes immobilization of surplus weapons plutonium with ceramic material and burning of surplus plutonium as mixed oxide (MOX) fuel in existing domestic commercial reactors. At least 8 metric tons of surplus plutonium will be immobilized because it is not suitable for use in MOX fuel without extensive purification. The timing and extent to which immobilization or a combination of both approaches are ultimately deployed will depend on follow-on work to resolve technical, institutional, cost and international issues. The Administration will not construct new facilities for disposition of U.S. plutonium unless there is significant progress on plans for plutonium disposition in Russia. Disposition of surplus plutonium in existing Canadian CANDU reactors would be reserved as an option in the event that a multilateral agreement to proceed with this approach is negotiated among Russia, Canada and the United States. The success of these efforts will directly contribute to national security, enhancing cooperation with Russia, and attaining reciprocal actions on the disposition of Russian surplus plutonium.

In FY 1998 DOE will conduct tests, process development, technology demonstrations, site-specific environmental analysis, prepare/solicit detailed

cost proposals for both disposition approaches, and issue a draft Environmental Impact Statement (EIS) selecting the sites for the disposition facilities. Current efforts involve consolidating the long-term storage of surplus fissile materials pending disposition; designing, demonstrating, and testing an integrated prototype system to disassemble plutonium weapons components and convert the plutonium to stable, inspectable forms suitable for international inspection and disposition; developing the process for the ceramic immobilization form; conducting mixed oxide fuel tests; pursuing the acquisition of a contractor team for the design, licensing, construction, and operation of the MOX Fuel Fabrication Facility and operation of reactors for irradiation of the MOX fuel. In FY 1999, performance of tests, process development, and technology demonstrations will continue and a Record of Decision (ROD) will be made in late 1998 on the location of one or more plutonium disposition sites. Also in FY 1999, detailed design will begin for a Pit Disassembly and Conversion Facility and a Mixed Oxide (MOX) Fuel Fabrication Facility. Design for an Immobilization and an Associated Processing Facility will follow in FY 2000. The Record of Decision and implementation efforts will directly contribute to the advancement of U.S. and international nonproliferation interests and to improving the cost-effectiveness of the Department's management of stockpiles of surplus fissile materials.

In July 1996, the Department issued a Record of Decision regarding the disposition of surplus highly enriched uranium (HEU). The Program's efforts in FY 1998 and FY 1999 will continue to focus on implementing the July 1996 Record of Decision to disposition up to 85% of the surplus highly enriched uranium by down-blending it with other uranium materials to commercially-usable low enriched uranium, thereby advancing U.S. nonproliferation goals, reducing storage and security costs, and providing revenues to the Treasury from the commercial sale of these surplus assets over time. The remaining surplus HEU that is in forms that would be unsuitable will be disposed of as waste.

To date, 174.3 metric tons (MT) of HEU have been declared excess to national security needs. Some of that material is in the form of spent fuel, and not available for down-blending. Because of the various forms of HEU and the availability dates from weapons dismantlement and site cleanup operations, blending would take place over an estimated 15 to 20-year period. Some of the HEU is unsuitable for commercial use, and other quantities are reserved for non-defense program needs. Thirteen MT have already been transferred to the United States Enrichment Corporation (USEC) and an additional 50 MT is to be transferred over the next five years. DOE expects that an additional 11 MT of off-specification HEU could be blended down and sold resulting in receipts starting in late FY 2001. (Additional quantities would be available after that date.) Ten MT of high quality excess HEU that is currently under IAEA safeguards at the Oak Ridge Reservation might also be blended down for commercial sale (DOE expects that IAEA safeguards would follow the material at least until it is blended down to LEU.)

Of the HEU remaining in the national security stockpile (the quantity is classified), some is reserved for weapons, some is reserved for naval reactors, and some is reserved for possible use to produce tritium in nuclear reactors. DOE will work with the Department of Defense and other agencies to identify additional quantities of HEU in the national security stockpile that might be declared excess. Such a declaration would be made by the President, acting on the recommendation of the Nuclear Weapons Council.

In addition to domestic-based activities, FY 1998 efforts will focus on work with Russia for programs to facilitate the elimination of surplus Russian weapons plutonium. Efforts will build on the completed U.S./Russian Joint Study of Technologies for the Disposition of Surplus Plutonium and

include a series of analyses and small-scale tests and demonstrations of plutonium disposition technologies. Technical areas being jointly evaluated include: burning the surplus plutonium in reactors; immobilization of plutonium in solid matrices; stabilization of liquid and other forms of nuclear materials; plutonium conversion; nondestructive assay and verification; and storage. In FY 1999, these collaborative disposition efforts will continue. In addition, development of a pilot-scale plutonium conversion system in Russia will commence following the feasibility study/conceptual design planned for FY 1998. The Department's work will directly facilitate progress with Russia in the safe, secure, verifiable storage and disposition of surplus Russian plutonium in a manner that helps preclude its reuse in nuclear weapons.

The specific GOAL of the Fissile Materials Disposition Program is to:

Contribute to a reduction in the global nuclear danger associated with inventories of surplus weapons-usable fissile materials by developing strategies and implementing actions to provide safe, secure, cost effective and inspectable storage of U.S. weapons-usable fissile materials, and dispose of these surplus materials in a manner that encourages cooperation and reciprocal action abroad.

The OBJECTIVES related to this goal are:

1. To Provide a Department-wide Storage Configuration for Surplus Weapons-Usable Fissile Materials that is Safe, Secure, Environmentally Sound, Inspectable and Cost-effective - Strategies are: (1) Eliminate the storage of separated, weapons-usable plutonium at the Rocky Flats Environmental Technology Site; (2) Utilize existing facilities and infrastructure to the extent practical and upgrade, as necessary, to meet safety, security, and inspection requirements; and (3) Continue the storage of surplus plutonium at the Hanford Site, Idaho National Engineering and Environmental Laboratory and the Los Alamos National Laboratory, pending disposition.
2. To Eliminate the Stockpile of Surplus Highly Enriched Uranium - Strategies are: (1) Decrease site inventories of surplus highly enriched uranium and associated management costs; (2) Engage the private sector, to the extent practical, to process and disposition surplus highly enriched uranium, thereby developing the industrial infrastructure to accommodate the blend down of increased quantities of surplus HEU to commercially-usable low enriched uranium over time; and (3) Where practical, generate revenues from the disposition of HEU for the U.S. Treasury.
3. To Eliminate the Stockpile of Surplus Weapons-Usable Plutonium - Strategies are: (1) Resolve technical, institutional, cost, and international issues to enable decisions on the timing and extent to which one or both technical disposition approaches are implemented; (2) Demonstrate the early feasibility of an integrated process for the disassembly and conversion of plutonium from weapons components into forms suitable for international inspection and disposition; (3) Maximize the use of existing facilities and infrastructure for disposition activities, where possible; (4) Rely on commercial industry for disposition activities to the extent practical; and (5) Decrease inventory of surplus plutonium and associated management costs.
4. Conduct Joint Technical Activities with Russia and Other Nations in Support of U.S. Efforts to Encourage Russia to Dispose of Stockpiles of

## PERFORMANCE MEASURES:

Excess Weapons Plutonium - Strategies are: (1) Support government-wide (through the interagency working group process) efforts to negotiate bilateral or multilateral agreements necessary to implement the disposition of U.S. and Russian plutonium no longer required for defense purposes; (2) Conduct jointly with Russia small and pilot-scale tests and demonstrations of plutonium disposition technologies; and (3) Contribute to an international effort to implement plutonium disposition in Russia.

## PERFORMANCE MEASURES:

### Future Storage

- Complete the shipment of Rocky Flats plutonium pits to Pantex.

### Highly Enriched Uranium Disposition

- Transfer 8mt of the 50mt of surplus HEU to USEC for downblending to LEU for sale and subsequent use in commercial nuclear reactors.

### Plutonium Disposition

#### Pit Disassembly and Conversion

- Complete engineering of oxide packaging automation systems for the pit disassembly and conversion prototype.
- Complete modifications to the pit disassembly and conversion prototype to accept the new standard can configuration.
- Initiate Title I design for the Pit Disassembly and Conversion Facility.

### Immobilization

- Define the processing steps by completing initial immobilization feed preparation tests.

## PERFORMANCE MEASURES:

- Finalize immobilization product specification.
- Initiate production-scale testing of key immobilization equipment and produce ten samples for analysis.
- Develop process for alloy type materials.
- Demonstrate ability to declass Zero Power Physics Reactor and Fast Flux Test Facility fuels.

### Reactor

- Determine affects of impurities by conducting MOX fuel pellet fabrication and irradiation experiments.
- Identify site and process for fabrication of lead MOX fuel test assemblies.
- Conduct MOX fuel pellet fabrication and irradiation experiments.
- Develop fuel qualification plan and reactor licensing and permitting plans .
- Implement MOX/reactor consortium project management and systems engineering plans .
- Begin Title I design for the MOX Fuel Fabrication Facility.

### Cooperation and Reciprocity With Russia and Other Nations

- Conduct six joint analyses and technical demonstrations with Russia on options for plutonium disposition.
- Initiate detail design and equipment procurement for a pilot-scale Russian plutonium conversion system.

### NEPA

- Select the site(s) for plutonium disposition.

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS (to date):

SIGNIFICANT ACCOMPLISHMENTS AND PROGRAM SHIFTS (to date):

#### Future Storage

- Initiated shipment of surplus weapons pits from Rocky Flats to Pantex.
- Completed Title I design for a future storage facility for surplus non-pit materials.
- Completed site-specific conceptual design for storage facility upgrades for surplus pit materials.

#### Highly Enriched Uranium Disposition

- Made substantial progress in preparing for the transfer and subsequent downblending of up to 90 metric tons of surplus HEU to the Tennessee Valley Authority (TVA) and the United States Enrichment Corporation (USEC).

#### Plutonium Disposition

##### Pit Disassembly and Conversion

- Cold-tested HYDOX, canning and electrolytic decontamination and pit bisector modules.
- Bisected and converted to oxide (HYDOX) seven pit types.
- Completed conceptual design of a Pit Disassembly and Conversion Facility.

##### Immobilization

- Completed experiments providing the basis to select between glass and ceramic forms.
- Selected the immobilization formulation (ceramic) for the "can-in-canister" approach.

## SIGNIFICANT ACCOMPLISHMENTS:

### Reactor

- Initiated mixed oxide (MOX) fuel experiments.
- Initiated the procurement process for selection of contractors for a MOX Fuel Fabrication Facility and commercial nuclear power reactors.
- Completed conceptual design for a MOX Fuel Fabrication Facility.

### Cooperation and Reciprocity With Russia and Other Nations

- Initiated small-scale tests and demonstrations of surplus weapons plutonium disposition technologies jointly with Russia.

### NEPA

- Issued a Record of Decision (ROD) on the path forward for the storage of U.S. weapons-usable fissile materials and the disposition of surplus weapons plutonium.
- Initiated site-specific environmental analyses necessary to enable selection of surplus plutonium disposition site(s).

FISSILE MATERIALS DISPOSITION  
PROGRAM FUNDING BY SITE  
(Dollars in Thousands)

Field Office	FY 1997 Current Appropriation	FY 1998 Original Appropriation	FY 1998 Adjustments	FY 1998 Current Appropriation	FY 1999 Request
Albuquerque Operations Office					
Albuquerque Operations Office	\$ 25	\$ 0	\$	\$ 0	\$ 0
Los Alamos National Laboratory	23,592	32,349		32,349	34,997
PANTECH	6,035	25		25	50
Amarillo National Resource Center	5,000	0		0	0
Sandia National Laboratory	4,068	3,195		3,195	3,120
Chicago Operations Office					
Chicago Operations Office	2,955	300		300	300
Argonne National Laboratory	1,815	1,515		1,515	1,500
MOX Fuel Fab & Irrad Contractor	0	3,100		3,100	14,000
Federal Energy Technology Center	4,142	3,650		3,650	3,650
Idaho Operations Office					
Idaho Operations Office	25	0		0	0
Idaho National Engineering Lab	265	0		0	0
Nevada Operations Office	10	0		0	0
Oakland Operations Office					
Oakland Operations Office	2,000	0		0	0
Atomic Energy of Canada, Ltd	905	505		505	200
Fluor Daniel Inc	415	0		0	0
Lawrence Livermore National Lab	16,502	26,092		26,092	21,627
Oak Ridge Operations Office					
Oak Ridge Operations Office	125	0		0	0
Oak Ridge National Laboratory	10,594	13,815		13,815	13,505
Y-12	3,000	3,908		3,908	3,908
Richland Operations Office					
Richland Operations Office	25	60		60	100
Fluor Daniel Hanford	215	0		0	0
Pacific National Laboratory	1,600	1,500		1,500	1,500
Rocky Flats Field Office	50	50		50	50
Savannah River Operations Office					
Savannah River Operations Office	25	231		231	100
Westinghouse Savannah River	15,540	8,215		8,215	11,665
Washington Headquarters	4,868	5,286		5,286	5,688
Pit Disassembly & Conversion Facility Design	0	0		0	25,000
MOX Fuel Fabrication Facility Design	0	0		0	28,000
TOTAL	103,796	103,796	0	103,796	168,960



## FISSILE MATERIALS DISPOSITION

(Tabular dollars in thousands, Narrative in whole dollars)

### I. Mission Supporting Goals and Objectives

In the aftermath of the Cold War, significant quantities of weapons-usable fissile materials (primarily plutonium and highly enriched uranium) have become surplus to national defense needs both in the United States and Russia. The threat that nuclear weapons or materials could fall into the wrong hands through theft or diversion is a clear and present danger. The danger exists not only in the potential for proliferation of nuclear weapons, but also in the potential for environmental, safety and health consequences if surplus fissile materials are not properly managed. United States policy is to seek to eliminate, where possible, accumulation of stockpiles of highly enriched uranium and plutonium, and to ensure that where these materials already exist they are subject to the highest standards of safety, security, and international accountability.

This budget reflects funds necessary to continue implementing the long-term storage and disposition of surplus weapons-usable fissile materials. Cost and schedule estimates are based on conceptual design estimates pending completion of detailed cost proposals/estimates in support of the Record of Decision. Funds requested for implementation of HEU disposition were based upon the Department's July 1996 Record of Decision to blend down U.S. surplus highly-enriched uranium to low-enriched uranium for peaceful use as commercial reactor fuel. Storage and plutonium disposition decisions are:

- Storage Approach:
  - Rocky Flats: Phase out storage of all weapons-usable plutonium at Rocky Flats Environmental Technology Site; move pits to Pantex during a two year period beginning in 1997, and move Rocky Flats' separated and stabilized non-pit materials to Savannah River Site when certain conditions are met.
  - Pantex: Upgrade storage facilities at Pantex (Zone 12 South) to store plutonium pits at Pantex including pits from Rocky Flats. Storage facilities at Zone 4 would continue to be used prior to completion of the upgrade activities.
  - Savannah River: Expand the planned Actinide Packaging and Storage Facility to be built at Savannah River Site to store surplus, non-pit plutonium materials currently at Savannah River Site and surplus non-pit plutonium materials from Rocky Flats pending the start of plutonium disposition (carried in EM line item Project 97-D-450).
  - Hanford, Idaho National Engineering Laboratory and Los Alamos National Laboratory: Continue storage of surplus plutonium at these sites pending disposition.

## I. Mission Supporting Goals and Objectives:

- Disposition Approach:

The Department plans to prepare for disposition of plutonium by immobilizing plutonium in ceramic form surrounded by high level waste and by burning surplus plutonium as mixed oxide (MOX) fuel in existing reactors. While both approaches are viable for the disposition of surplus weapons usable plutonium, technical, institutional and cost uncertainties associated with both the immobilization and MOX options exist. The results of additional technology developments and demonstrations, site-specific environmental analyses, detailed cost proposals, nonproliferation considerations, and negotiations with Russia and other nations will ultimately determine the timing and extent to which one or both technologies are deployed. Accordingly, the Department's plans include completing the necessary process development and small-scale technology tests. These include "can in canister" immobilization tests, tests of MOX fuel fabrication and irradiation, site specific environmental analyses and detailed cost proposals.

For the immobilization approach, the Department needs to resolve the technological issues associated with formulating plutonium in various ceramic materials, the production processes, and the impact of impurities in the surplus plutonium forms in order to have the confidence that this approach can provide success in a timely and cost-effective manner, and the necessary verification testing of the can-in-canister preferred approach.

For the MOX burning in existing reactors approach, the Department needs to quantify the contracting arrangement and cost issues as well as issues associated with the potential impacts of other materials alloyed in plutonium pits in order to have the confidence that this approach can provide success in a timely and cost-effective manner.

- Other Disposition-Related activities include:

- For both disposition approaches, we need to complete design and operational testing of the processes that would be used to convert the plutonium, from pits and other forms into oxide as feed material for the disposition technologies and suitable for international safeguards. Detailed design of a Pit Disassembly and Conversion Facility will begin in FY 1999.
- Four sites (Hanford, Idaho National Engineering and Environmental Laboratory, Pantex and Savannah River) are being considered for constructing and operating a Pit Disassembly and Conversion Facility and a MOX Fuel Fabrication Facility. The Savannah River Site, which has an existing operational high level waste vitrification capability has been identified as the Department's Preferred Alternative for immobilization. Hanford, which has plans for such a capability will also be considered. The selection of the preferred site(s) is expected to be made in the draft EIS scheduled for the second quarter of 1998 and final selection in a Record of Decision scheduled for late 1998.

## I. Mission Supporting Goals and Objectives:

- Continuation and expansion of a range of U.S. and U.S.-Russian small-scale tests and demonstrations of plutonium disposition technologies to build trust and cooperation and help prepare for joint implementation of future plutonium disposition actions and agreements . This work will help fill the gaps in technical knowledge, remove uncertainty on the viability of certain technologies, and demonstrate the practical usefulness of some of the technologies that might be employed for disposition of surplus weapons plutonium.
- Take the initial steps to provide a Russian pilot-scale plutonium conversion/non-destructive assay system with Russian weapons plutonium resulting in material converted and under international safeguards.

## II. Funding Schedule:

<u>Program Activity</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>\$ Change</u>	<u>% Change</u>
Storage Options	\$18,437	\$1,390	\$930	\$-460	-33.1
Disposition Options	\$67,549	\$88,406	\$159,577	\$71,171	80.5
Technical Integration, Support & Associated Technologies	\$7,533	\$5,705	\$3,200	\$-2,505	-43.9
NEPA Compliance	\$6,644	\$3,950	\$665	\$-3,285	-83.1
Total	\$100,163	\$99,451	\$164,372	\$64,921	65.3

### III. Performance Summary :

	FY 1997	FY 1998	FY 1999
<u>Future Storage</u>			
Complete technical, cost, schedule and related analyses to enable a decision on alternatives, sites and approaches for fissile materials future storage.	\$707	\$0	\$0
Prepare a site-specific storage facility conceptual design for pit materials, resolve issues related to storage operations.	\$730	\$1,390	\$930
Fully fund design of a site-specific storage facility at Savannah River (additional vault capacity) for surplus non-pit materials following the ROD (carried in EM line item Project 97-D-450).	\$9,500	\$0	\$0
Carryover into FY 1998 for Title I design and construction of upgrades for surplus pit materials (\$5,340,000) and partial construction of storage facility for surplus non-pit materials (\$2,160,000) in FY 1999.	\$7,500	\$0	\$0
TOTAL Future Storage	\$18,437	\$1,390	\$930
<u>Highly Enriched Uranium Disposition</u>			
Complete certification and procure new shipping containers for HEU metal and oxides.	\$750	\$943	\$221
Characterize material, perform technical evaluations and plan for additional lots of HEU.	\$1,550	\$2,303	\$1,718
Implement disposition of surplus HEU and off specification HEU in accordance with disposition plan.	\$1,100	\$1,590	\$1,755
Develop technical approaches for disposition of U233	\$500	\$500	\$500

### III. Performance Summary :

	FY 1997	FY 1998	FY 1999
<u>Plutonium Disposition</u>			
Complete technical, schedule, cost and related analyses to enable a decision on technologies for surplus fissile materials disposition.	\$100	\$0	\$0
Initiate and complete initial demonstration of an integrated prototype system for extraction and conversion process for weapons plutonium pit materials to forms suitable for disposition (Advanced Retrieval and Integrated Extraction System-ARIES) and conceptual design for the Pit Disassembly and Conversion Facility. The prototype system at the Los Alamos National Laboratory includes decontamination/preparation of existing room and installation of gloveboxes and associated process support equipment.	\$16,202	\$18,420	\$0
Conduct repository analyses associated with disposition technologies	\$885	\$850	\$850
Complete process development and Phase II testing for a Pit Disassembly and Conversion Facility, and begin Title I design for the facility.	\$0	\$0	\$42,430
Conduct laboratory scale tests of several glass and ceramic formulations and types of melters, make a formulation selection, and conduct feed material and immobilization form (ceramic) analyses.	\$20,393	\$30,000	\$30,458
Procure plutonium disposition services using MOX fuel in reactors and award contract, including fuel qualification design, reactor modification designs, and associated licensing efforts. Conduct fundamental process development for MOX fuel fabrication and irradiation tests of the fabricated MOX fuel.	\$16,069	\$23,800	\$28,700
Begin Title I design for the MOX Fuel Fabrication Facility.	\$0	\$0	\$28,000

### III. Performance Summary

	FY 1997	FY 1998	FY 1999
<u>Cooperation and Reciprocity With Russia and Other Nations</u>	\$10,000	\$10,000	\$24,945
Conduct joint analyses and technical demonstrations in order to provide U.S. and Russian decision makers a set of consistently evaluated plutonium disposition alternatives to form a mutual foundation for plutonium disposition actions. Small-scale tests and demonstrations of technical options being jointly evaluated include: burning the surplus plutonium in reactors; immobilization of plutonium in solid matrices; stabilization of liquid and other forms of nuclear materials, plutonium component disassembly and conversion, nondestructive assay and verification, and storage. Begin design and equipment procurement for a Russian pilot-scale plutonium conversion system.			
TOTAL Disposition	\$67,549	\$88,406	\$159,577
<u>Technical Integration, Support and Associated Technologies</u>			
Crosscutting technologies activities that support all storage and disposition alternatives, program integration efforts, including activities performed by the Amarillo National Resource Center for Plutonium in FY 1997.	\$7,533	\$5,705	\$3,200
<u>National Environmental Policy Act (NEPA) Activities</u>			
Issue a draft and final PEIS for the future storage of all fissile materials and the disposition of surplus plutonium and conducted public scoping and outreach activities in accordance with NEPA regulations.	\$2,800	\$0	\$0
Conduct site-specific EIS/EAs and associated public scoping and outreach activities to enable decisions on location(s) for surplus plutonium disposition and conduct initial public scoping and outreach activities for U-233 disposition in FY 1999.	\$3,844	\$3,950	\$705
TOTAL NEPA	\$6,644	\$3,950	\$665

Explanation of Funding Changes FY 1998 to FY 1999:

Storage Options - the net decrease of \$460,000 is due to completion of site-specific conceptual design of facility upgrades for pit materials.

Disposition Options - the increase of \$71,171,000 is due to the start of Title I and II design for the Pit Disassembly and Conversion Facility and the MOX Fuel Fabrication Facility; the development of a Russian pilot-scale plutonium conversion system; and other disposition activities.

Technical Integration, Support & Associated Technologies - the net decrease of \$2,505,000 is due to a reduction in technical support activities and activities associated with technologies common to all disposition alternatives such as non-destructive assay required for international inspections.

NEPA Compliance - the net decrease of \$3,285,000 is due to the completion of the environmental analyses associated with the site(s) selection for the disposition facilities.

DEPARTMENT OF ENERGY  
FY 1999 CONGRESSIONAL BUDGET REQUEST  
OTHER DEFENSE ACTIVITIES  
(Tabular dollars in thousands, Narrative in whole dollars)

OFFICE OF FISSILE MATERIALS PROGRAM DIRECTION

I. Mission Supporting Goals/Ongoing Responsibilities

Program direction provides overall management, oversight, staffing, and administrative support necessary to carry out the mission of the Fissile Materials Disposition Program. Operations are conducted in an efficient and streamlined manner consistent with National Performance Review objectives and Departmental strategic alignment initiatives. Program direction has been grouped into four categories:

Salaries and Benefits provides for Federal personnel compensation to include SES and other awards, overtime, lump sum leave payments, transit subsidy costs, and employer's contribution to employees' benefits.

Travel includes domestic and foreign trips necessary to conduct business in carrying out the mission of the program. International travel is frequent in that Fissile Materials Disposition works closely with Russian scientists and government officials on plutonium disposition issues.

Support Services include program analyses and office operations functions which result in improving the effectiveness, efficiency, and economy of management and general administrative services.

Other Related Expenses include employee training; interpreter services; subscriptions; building occupancy; telecommunications; supplies; copiers; postage; printing and graphics; payroll outsourcing; and other miscellaneous expenses associated with office operations.



II. Funding Table:

	FY 1997 Current Appropriation	FY 1998 Original Appropriation	FY 1998 Adjustments	FY 1998 Current Appropriation	FY 1999 Budget Request
Headquarters					
Salary and Benefits	\$2,438	\$3,132		\$3,132	\$3,354
Travel	\$240	\$240		\$240	\$240
Support Services	\$232	\$232		\$232	\$232
Other Related Expenses	\$723	\$741		\$741	\$762
Total	\$3,633	\$4,345	\$0	\$4,345	\$4,588
Full Time Equivalents	21	25		25	25

### III Performance Summary:

#### Salaries and Benefits:

Federal Staff provide management oversight and technical support for the safe, secure, environmentally sound future storage of all weapons-usable fissile materials and the disposition of fissile materials declared surplus to national defense needs. The increase is due to salary adjustments in accordance with allowable inflation factors.

FY 1997	FY 1998	FY 1999
\$2,438	\$3,132	\$3,354

#### Travel:

FY 1999 funding supports domestic and foreign trips required to provide management oversight and technical support to the program, and ensure cooperation and collaboration with Russian and other nations on the disposition of plutonium. Travel reflects a reduction of 20% from the FY 1995 baseline of \$300,000.

\$240	\$240	\$240
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#### Support Services:

FY 1999 funding supports office operations functions designed to improved overall effectiveness. Support Services reflects a reduction of 15% from the FY 1996 baseline of \$273,000.

\$232	\$232	\$232
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#### Other Related Expenses:

FY 1999 funding supports employee training, office automation support and activities funded by the Working Capital Fund. The increase is due to allowable inflation for Working Capital Fund activities and other office operations.

\$723	\$741	\$762
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### IV. Explanation of Funding Changes from FY 1998 to FY 1999:

Increase of \$222,000 to fund salary adjustments in accordance with allowable inflation factors.	+\$222,000
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Increase of \$21,000 to fund allowable inflation for Working Capital Fund activities and other office operations.	+\$ 21,000
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Total	+\$243,000
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FISSILE MATERIALS DISPOSITION  
CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY  
(Dollars in thousands)

Capital Operating Expenses	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>\$ CHG.</u>	<u>% CHG.</u>
General Plant Project (total)	\$ 0	\$ 0	\$ 0	\$	%
Accelerator Improvement Project (total)	0	0	0		
Capital Equipment (total)	1,769	2,150	5,700	3,550	
Project Related Costs					
1. Conceptual Design Reports	\$ 0	\$ 0	\$ 0	\$ 0	%
2. Other Project Costs	\$ 23,507	\$ 24,650	\$ 20,030	\$ (4,620)	% -18.7%

Construction Project summary (both Operating and Construction Funded)

<u>Project Number</u>	<u>Project Title</u>	<u>TEC</u>	<u>Previous Approp.</u>	<u>FY 1997 Approp.</u>	<u>FY 1998 Approp.</u>	<u>FY 1999 Request</u>	<u>Unapprop. Balance</u>
99-D-141	Pit Disassembly & Conversion Facility	\$ <u>346,192</u>	\$ 0	\$	\$ 0	\$ 25,000	\$ 321,192
99-D-143	Mixed Oxide Fuel Fabrication Facility	<u>383,186</u>				<u>28,000</u>	<u>355,186</u>
Total Fissile Materials Disposition		\$ <u><u>729,378</u></u>	\$ <u><u>0</u></u>	\$ <u><u>0</u></u>	\$ <u><u>0</u></u>	\$ <u><u>53,000</u></u>	\$ <u><u>676,378</u></u>

# CAPITAL OPERATING EXPENSES & CONSTRUCTION SUMMARY - FMD (Cont'd)

## Detailed Breakouts

	<u>Total</u> <u>CDR Cost</u>	<u>Previous</u> <u>Approp.</u>	<u>FY 1997</u> <u>Approp.</u>	<u>FY 1998</u> <u>Approp.</u>	<u>FY 1999</u> <u>Request</u>	<u>Comp.</u> <u>Date</u>
Conceptual Design Reports - Exceeding \$3 Million						
No one Conceptual Design Report exceeds \$3 Million						

Total	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>
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	<u>Previous</u> <u>Approp.</u>	<u>FY 1997</u> <u>Approp.</u>	<u>FY 1998</u> <u>Approp.</u>	<u>FY 1999</u> <u>Request</u>
Other Project Costs - Exceeding \$3 Million				
1. Pit Disassembly & Conversion Facility	21,590	15,557	17,780	14,930
2. MOX Fuel Fabrication Facility	11,783	7,950	6,870	5,100
Total	\$ 33,373	\$ 23,507	\$ 24,650	\$ 20,030

	<u>TEC</u>	<u>Previous</u> <u>Approp.</u>	<u>FY 1997</u> <u>Approp.</u>	<u>FY 1998</u> <u>Approp.</u>	<u>FY 1999</u> <u>Request</u>	<u>Acceptance</u> <u>Date</u>
Major Items of Equipment (CE \$2 Million and Above)						
1. No one item of equipment costs \$2M or more	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	

Total	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>	\$	<u>0</u>
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DEPARTMENT OF ENERGY  
FY 1999 CONGRESSIONAL BUDGET REQUEST  
(Changes from FY 1998 Congressional Budget Request are denoted with a vertical line in left margin.)  
OTHER DEFENSE ACTIVITIES  
(Tabular dollars in thousands. Narrative material in whole dollars.)  
FISSILE MATERIALS DISPOSITION

1. Title and Location of Project:	Pit Disassembly and Conversion Facility - Title I & II Design	2a.
Project No.	99-D-141	
	Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)
	Preliminary Schedule	Title I Baseline
		Current Baseline Schedule
3a. Date A-E Work Initiated		
(Title I Design Start Scheduled):	1st Qtr. FY 1999	
3b. A-E Work (Titles I & II) Duration:	30 months	
4a. Date Physical Construction Starts:	.	
4b. Date Construction Ends:		
	Preliminary Estimate	
Total Design Cost	\$47,396	
	Preliminary Estimate	Title I Baseline
5. Total Estimated Cost (TEC)	a/	Current Baseline Estimate
6. Total Project Cost (TPC)	a/	

7. Design Financial Schedule (Federal Funds):

<u>Fiscal Year</u>	<u>Appropriation</u>	<u>Adjustments</u>	<u>Obligations</u>	<u>Costs</u>
FY 1999	\$25,000	\$0	\$ 25,000	\$18,500
FY 2000	22,396	0	22,396	21,672
FY 2001	0	0	0	7,224

a/ Preliminary cost estimates for the Pit Disassembly and Conversion Facility are based upon conceptual estimates. The preliminary estimates are:

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1. Title and Location of Project: Pit Disassembly and Conversion Facility - Title I & II Design      2a.  
Project No. 99-D-141

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Various Locations (SRS, Pantex, Hanford, Idaho)

2b. Construction Funded (design only)

Total Estimated Cost (TEC) -- approximately \$346,000,000 and Total Project Cost (TPC) -- approximately \$586,000,000. These estimates are used for the purpose of requesting design funding only. Future construction funding will be based upon Title I cost estimates.

8. Project Description, Justification, and Scope

In the aftermath of the Cold War, significant quantities of weapons-usable plutonium have become surplus to national defense needs both in the United States and Russia. The Administration's approach is to dispose of the nation's surplus plutonium and encourage Russia to dispose of stockpiles of excess weapons plutonium. The Department issued a Record of Decision (ROD) on the Storage and Disposition of Surplus Weapons-Usable Fissile Materials in January 1997. This decision calls for DOE to pursue a hybrid approach for plutonium disposition that allows for immobilization of surplus weapons plutonium in a glass or ceramic matrix and burning of some of the surplus plutonium as mixed oxide fuel (MOX) in existing commercial reactors. In order to implement either option of the hybrid approach, plutonium contained in surplus nuclear weapons-components (pits) must first be converted to an oxide form. No such facilities currently exist. A Pit Disassembly and Conversion Facility will provide the U.S. with the capability to transform plutonium classified weapons pits to an unclassified oxide form suitable for disposition and international inspection.

The Pit Disassembly and Conversion Facility is a complex consisting of a hardened building that will contain the plutonium processes in a safe and secure manner and conventional buildings and structures that will house support personnel, systems and equipment. The plutonium processing building will be a material access area, require approximately 150,000 square feet, and house the following key systems: pit shipment, receiving, assay and storage; pit plutonium metal extraction and conversion to oxide; and plutonium oxide packaging, assay, storage and shipment. Also included are facilities for recovery, decontamination, and declassification of other special nuclear material and non-special nuclear material resulting from pit disassembly. In addition, there are facilities to accommodate IAEA safeguards for specific portions of the processes and facility. The conventional buildings and structures, requiring approximately 100,000 square feet, will house offices, change rooms, an analytical chemistry laboratory, a central control station, waste treatment, packaging, storage and shipment systems. The facility will have the capacity to process 3.5 metric tons of surplus plutonium per year. It is estimated that the facility will be operational for a ten-year period beginning in FY 2005.

The Pit Disassembly and Conversion Facility project consists of: design and construction of the buildings and structures, design, procurement, installation, testing and start-up of equipment to convert plutonium in pits to oxide form as well as associated supporting equipment, components and systems. The facility is planned to be operated for ten years and then decontaminated and decommissioned over a three to four-year period. The selection of the preferred site is expected to be made in the draft EIS scheduled for the second quarter of 1998 and a final site selection is

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1. Title and Location of Project: Pit Disassembly and Conversion Facility - Title I & II Design 2a.  
Project No. 99-D-141

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Various Locations (SRS, Pantex, Hanford, Idaho)

2b. Construction Funded (design only)

scheduled for late 1998 in the ROD.

This budget request precedes upcoming site-selection decisions that will define the scope of the Pit Disassembly and Conversion Facility. As a result, funds requested for Title I and II facility design are based on conceptual design for a new facility with existing general support infrastructure. The Title I & II funding request will not prejudice the final ROD, but helps assure that construction funding is available to support prompt implementation of Title I design following the ROD in late 1998.

Note that current construction cost estimates are preliminary and will be revised and final baselines established after completion of Title I design in FY 1999. The final baseline will be used to measure performance.

9. Details of Cost Estimate

	<u>Item Cost</u>	<u>Total Cost</u>
a. Design Phase		\$37,291
1. Preliminary and Final Design costs, (Design, Drawings, and Specifications)	33,383	
2. Design management costs @ 10% of (a)	3,908	
b. Contingencies at approximately 27 % of above costs		10,105
1. Design phase	10,105	
c. Total line item cost (Section 11.a.1.(a))		47,396
d. Less Non-Federal Contribution		<u>0</u>
e. Total Agency Requirement (Design Only)		<u>\$47,396</u>

10. Method of Performance

Method of performance will not vary by location. It is expected that a cost plus fixed fee contract will be the most appropriate and cost beneficial for the design work. It is anticipated that the construction procurement will be a fixed price contract awarded on the basis of competitive bidding.

1. Title and Location of Project: Pit Disassembly and Conversion Facility - Title I & II Design	2a.
Project No. 99-D-141	
Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total design costs (Agency Requirements)						
1. Total design costs						
(a) Design (Section 9.a & Section 9.c.1)	\$0	\$0	\$0	\$25,000	\$22,396	\$47,396
(b) Plant Engineering & Design (PE&D).	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories . . . . .	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	0	0	\$0	\$25,000	\$22,396	\$47,396
2. Other project costs a/						
(a) R&D necessary to complete project	0	0	0	0	0	0
(b) Conceptual design costs . . . .	0	0	0	0	0	0
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs .	0	0	0	0	0	0
(e) Other project related costs (Define in Section 12)	0	0	0	0	0	0
Total other project costs . . . .	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total design cost . . . . .	\$0	\$0	\$0	\$25,000	\$22,396	\$47,396
3. LESS: Non-Agency contribution (define Federal vs non-Federal)	0	0	0	0	0	0
Agency total design costs . . .	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$25,000</u>	<u>\$22,396</u>	<u>\$47,396</u>

a/ Other project costs and related annual costs will be defined during the FY 1999 detail design effort and reflected in the FY 2000 budget request.



1. Title and Location of Project:	Pit Disassembly and Conversion Facility - Title I & II Design	2a.
Project No.	99-D-141	
	Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total Project Funding

1. Total design costs

- (a) Design -- Narrative not required.
- (b) Plant Engineering & Design-- None
- (c) Operating expense funded equipment -- None
- (d) Inventories -- None

2. Other Project Costs a/

- (a) R&D --
- (b) Conceptual design-- To be completed in 1st quarter of FY 1998.
- (c) Decontamination & Decommissioning--
- (d) NEPA documentation-
- (e) Other project related costs --

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and DOE Orders. The preliminary total estimated cost estimates of the project includes the costs of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

a/ Other project costs and related annual costs will be defined during the FY 1999 detail design effort and reflected in the FY 2000 budget request.

DEPARTMENT OF ENERGY  
FY 1999 CONGRESSIONAL BUDGET REQUEST  
(Changes from FY 1998 Congressional Budget Request are denoted with a vertical line in left margin.)  
OTHER DEFENSE ACTIVITIES  
(Tabular dollars in thousands. Narrative material in whole dollars.)  
FISSILE MATERIALS DISPOSITION

1. Title and Location of Project: Project No. 99-D-143	Mixed Oxide Fuel Fabrication Facility - Title I & II Design			2a.
	Various Locations (SRS, Pantex, Hanford, Idaho)		2b. Construction Funded (design only)	
	Preliminary Schedule	Title I Baseline	Current Baseline Schedule	
3a. Date A-E Work Initiated (Title I Design Start Scheduled):	1st Qtr. FY 1999			
3b. A-E Work (Titles I & II) Duration:	36 months			
4a. Date Physical Construction Starts:	.			
4b. Date Construction Ends:				
Total Design Cost	Preliminary Estimate \$50,375			
	Preliminary Estimate	Title I Baseline	Current Baseline Estimate	
5. Total Estimated Cost (TEC)	a/			
6. Total Project Cost (TPC)	a/			

7. Design Financial Schedule (Federal Funds):

<u>Fiscal Year</u>	<u>Appropriation</u>	<u>Adjustments</u>	<u>Obligations</u>	<u>Costs</u>
FY 1999	\$28,000	\$0	\$28,000	\$20,700
FY 2000	22,375	0	22,375	21,844
FY 2001	0	0	0	7,831

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1. Title and Location of Project: Mixed Oxide Fuel Fabrication Facility - Title I & II Design 2a.

Project No. 99-D-143

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Various Locations (SRS, Pantex, Hanford, Idaho)

2b. Construction Funded (design only)

- a/ Preliminary cost estimates for the Mixed Oxide Fuel Fabrication Facility are based upon conceptual estimates. The preliminary estimates are: Total Estimated Cost (TEC) -- approximately \$384,000,000 and Total Project Cost (TPC) -- approximately \$575,000,000. These estimates are used for the purpose of requesting design funding only. Future construction funding will be based upon Title I cost estimates.

#### 8. Project Description, Justification, and Scope

In the aftermath of the Cold War, significant quantities of weapons-usable plutonium have become surplus to national defense needs both in the United States and Russia. The Administration's approach is to dispose of the nation's surplus plutonium and encourage Russia to dispose of stockpiles of excess weapons plutonium. The Department issued a Record of Decision (ROD) on the Storage and Disposition of Surplus Weapons-Usable Fissile Materials in mid-January 1997. This decision calls for DOE to pursue a hybrid approach for plutonium disposition that allows for immobilization of surplus weapons plutonium in glass or ceramic form and burning of some of the surplus plutonium as mixed oxide fuel (MOX) in existing reactors. A Mixed Oxide (MOX) Fuel Fabrication Facility will provide the U.S. with the capability to convert specification plutonium dioxide derived from surplus weapons grade plutonium stocks to MOX fuel suitable for use as a fuel source in U.S. commercial nuclear reactors, with subsequent disposal of the spent fuel to be carried out in accordance with the Nuclear Waste Policy Act. Some MOX fuel could also be used in Canadian deuterium uranium (CANDU) reactors depending upon negotiation of future international agreements between Canada, Russia, and the U.S.

The MOX Fuel Fabrication Facility will contain all the systems required for: receiving plutonium oxide from the Pit Disassembly and Conversion Facility, processing and blending of fuels materials, fabrication of fuel rod assemblies, assembly of completed fuel bundles and shipment to commercial reactors for irradiation. The facility will meet current commercial standards for nuclear fuel manufacturing utilizing the extensive experience base of European fabrication of MOX fuel. The facility is expected to be licensed by the Nuclear Regulatory Commission and operated by the private sector for the Department. The exact locations for disposition facilities will be determined pursuant to a follow-on, site-specific Environmental Impact Statement (EIS) as well as cost, technical and nonproliferation studies. Several proposed sites have general support infrastructure in place such as a fire department, security protection forces, and water and sewage treatment plants which will allow for best use of the available resources. The selection of the preferred site is expected to be made in the draft EIS scheduled for the second quarter of 1998 and a final site selection is scheduled for late 1998 in the ROD.

The MOX Fuel Fabrication Facility will require approximately 100,000 sq. ft of hardened building which will contain the following systems:

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1. Title and Location of Project:	Mixed Oxide Fuel Fabrication Facility - Title I & II Design	2a.
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Project No. 99-D-143

Various Locations (SRS, Pantex, Hanford, Idaho)

2b. Construction Funded (design only)

plutonium oxide and oxide receiving and storage; MOX powder preparation; pelletizing; sintering; pellet grinding and inspection; fuel rod loading and rework; fuel rod inspection and storage, fuel bundle assembly; clean scrap recovery, processing and recycle; analytical laboratory, contaminated waste, and interim storage vaults. In addition, approximately 100,000 sq. ft. of conventional structures are required adjacent to the fuel fabrication structure to house offices, change rooms, central control room, operator training and process demonstration, mechanical shops, emergency generator, warehouse, guard stations, entry portals, and parking. Accountability systems essential for use by the IAEA will be in place for the purpose of international safeguards. The facility will have the capacity to utilize about **3.5** MT of surplus plutonium (oxide) per year (5% plutonium loading) in the fabrication of MOX fuel. The Department has determined that about 33 MT of the 50 MT of plutonium declared surplus is suitable for fabrication into MOX fuel for use in light water commercial nuclear reactors. It is estimated that the facility will be operational for a ten- to fifteen-year period beginning in FY 2007 to accommodate the 33 MT and will then be decontaminated and decommissioned over a three to four year period.

This budget request precedes upcoming site selection and procurement decisions that will define the scope of the MOX Fuel Fabrication Facility. As a result, funds requested for facility design are based on conceptual design estimates for a new facility with existing site support infrastructure. Irradiation (5% plutonium loading) will take place in existing U.S. LWR commercial nuclear reactors. The Title I & II funding request will not prejudice the final ROD, but helps assure that construction funding is available to support prompt implementation of Title I design following the ROD in late 1998.

The Department is currently engaged in processes to select a vendor and a site for the MOX Fuel Fabrication Facility. Both decisions could affect the cost of the facility. Note that current construction cost estimates are preliminary and will be revised and final baselines established after completion of Title I design. The final baseline will be used to measure performance.

1. Title and Location of Project:	Mixed Oxide Fuel Fabrication Facility - Title I & II Design	2a.
Project No.	99-D-143	
	Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)

9. Details of Cost Estimate

	<u>Item Cost</u>	<u>Total Cost</u>
a. Design Phase		\$41,711
1. Preliminary and Final Design costs, (Design, Drawings, and Specifications)	37,803	
2. Design management costs @ 9% of (a)	3,908	
b. Contingencies at approximately 21% of above costs		8,664
1. Design phase	8,664	
c. Total line item cost (Section 11.a.1.(a))		50,375
d. Less Non-Federal Contribution		<u>0</u>
e. Total Agency Requirement (Design Only)		<u>\$50,375</u>

10. Method of Performance

Method of performance will not vary by location. A Request for Proposals will be issued by Chicago for the procurement of a consortium to provide fuel fabrication and irradiation of MOX fuel (teaming of MOX fuel fabricator and reactor irradiation service providers). Design, construction, licensing and operation of a MOX Fuel Fabrication Facility, reactor modifications, MOX fuel design and qualification will be accomplished by the selected consortium. Costs associated with licensing, design, and retrofitting reactors to burn MOX fuel will presumably be reflected in the final contract price. The MOX Fuel Fabrication Facility will be a Government-owned, Contractor Operated (GOCO) facility. Since it is expected that the MOX Fuel Fabrication Facility will produce fuel whose value exceeds the operational cost for the facility, the Government is not expected to be liable for any facility operational costs. DOE anticipates that a positive revenue stream to the Government will be realized during the operational phase of the consortium contract, inclusive of whatever irradiation service fees might be imputed. However, the cost offsets to the Government are not included here as evaluation of these cash flows presently would be speculative. It is expected that an incentive contract with a private consortium will be most appropriate and cost beneficial for the design and construction work. The construction would be through fixed price subcontracts.

1. Title and Location of Project:	Mixed Oxide Fuel Fabrication Facility - Title I & II Design	2a.
Project No.	99-D-143	
	Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)

11. Schedule of Project Funding and Other Related Funding Requirements

	Previous Years	FY 1997	FY 1998	FY 1999	Outyears	Total
a. Total design costs (Agency Requirements)						
1. Total design costs						
(a) Design (Section 9.a & Section 9.c.1)	\$0	\$0	\$0	\$28,000	\$22,375	\$50,375
(b) Plant Engineering & Design (PE&D).	0	0	0	0	0	0
(c) Operating expense funded equipment	0	0	0	0	0	0
(d) Inventories . . . . .	0	0	0	0	0	0
Total facility cost (Federal and Non-Federal)	0	0	\$0	\$28,000	\$22,375	\$50,375
2. Other project costs a/						
(a) R&D necessary to complete project	0	0	0	00	0	0
(b) Conceptual design costs . . . .	0	0	0	0	0	0
(c) Decontamination and Decommissioning (D&D)	0	0	0	0	0	0
(d) NEPA documentation costs .	0	0	0	0	0	0
(e) Other project related costs (Define in Section 12)	0	0	0	0	0	0
Total other project costs . . . .	\$0	\$0	\$0	\$0	\$0	\$0
Total design cost . . . . .	\$0	\$0	\$0	\$28,000	\$22,375	\$50,375
3. LESS: Non-Agency contribution (define Federal vs non-Federal)	0	0	0	0	0	0
Agency total design costs . . .	\$0	\$0	\$0	\$28,000	\$22,375	\$50,375

a/ Other project costs and related annual costs will be defined during the FY 1999 detail design effort and reflected in the FY 2000 budget request

1. Title and Location of Project:	Mixed Oxide Fuel Fabrication Facility - Title I & II Design	2a.
Project No.	99-D-143	
	Various Locations (SRS, Pantex, Hanford, Idaho)	2b. Construction Funded (design only)

12. Narrative Explanation of Total Project Funding and Other Related Funding Requirements

a. Total Project Funding

1. Total design costs

- (a) Design -- Narrative not required.
- (b) Plant Engineering & Design-- None
- (c) Operating expense funded equipment -- None
- (d) Inventories -- None

2. Other Project Costs a/

- (a) R&D --
- (b) Conceptual design-- To be completed in 1st quarter of FY 1998.
- (c) Decontamination & Decommissioning-
- (d) NEPA documentation--
- (e) Other project related costs --

13. Design and Construction of Federal Facilities

All DOE facilities are designed and constructed in accordance with applicable Public Laws, Executive Orders, OMB Circulars, Federal Property Management Regulations, and Nuclear Regulatory Commission regulations. The preliminary total estimated cost estimates of the project includes the costs of measures necessary to assure compliance with Executive Order 12088, "Federal Compliance with Pollution Control Standards"; section 19 of the Occupational Safety and Health Act of 1970, the provisions of Executive Order 12196, and the related Safety and Health provisions for Federal Employees (CFR Title 29, Chapter XVII, Part 1960); and the Architectural Barriers Act, Public Law 90-480, and implementing instructions in 41 CFR 101-19.6.

a/ Other project costs and related annual costs will be defined during the FY 1999 detail design effort and reflected in the FY 2000 budget request